



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Major Diagnostic Category*: Neurologia

Project Classification IRG: Healthcare Delivery and Methodologies

Project Classification SS: Biostatistical Methods and Research Design - BMRD

Project Keyword 1: Data analysis and modeling: development of statistical theory, analytic methods and models, computational tools and algorithms for the analysis and interpretation of data from clinical studies, randomized trials, epidemiological studies, human genetic association studies, environmental studies, and complex surveys; methods to handle data features and anomalies such as correlation, clustering, missing and skewed data; risk prediction and forecasting methods; causal modeling; high dimensional data methods

Project Keyword 2: administrative health care databases

Project Keyword 3: Age-related diseases, aging trajectories

Project duration (months): 36

Project Request: Animals:

Humans:

Clinical trial:

The object/s of this application is/are under patent copyright Y/N:

Operative Units / WP

	INSTITUTION	Department/Division/Lavoratory	Role in the project
1	Marche	Regional Health Office - Marche Region	Principal Investigator Unit. Coordination of the overall project, study design, data analyses, statistical analysis and dissemination of results
2	INRCA-IRCCS National Institute, Ancona, Italy.	Center of Clinical Pathology and Innovative Therapy	INRCA will contribute to the study design, data analysis and dissemination of results
3	Università Politecnica delle Marche	Clinical and Molecular Science	UNIVPM will contribute to develop computational tools and algorithms for analysis and interpretation of data, dissemination of results and writing reports

Investigators, Institution and Role in the Project

	Co-PI	Under40	Key Personnel	Institution/Org./Pos.	Role in the project	Birth Date
1			Recchioni Rina	INRCA-IRCCS National Institute, Ancona, Italy.	PhD. She will contribute to modeling clinical and administrative data	20/05/1961
2			Olivieri Fabiola	Università Politecnica delle Marche	PhD. She has experience in study design, high dimensional data abstraction and modeling data analysis	12/07/1969
3	X		Di Furia Lucia	Marche	MD. She will support the PI in coordination of the project and in the analyses of clinical and administrative data	24/12/1957
4		X	Fabi Katia	INRCA-IRCCS National Institute, Ancona, Italy.	MD. She will contribute to develop the minimum dataset on neurodegenerative diseases (ND)	14/09/1979

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Overall Summary

People are living longer but an increasing number of elderly people experiences chronicity and disability in the latest years of their life and this is of huge interest in the arena of public health. The identification of the ageing trajectories can contribute to plan appropriate and effective health care services. Administrative healthcare databases, which store information on drugs and health outcomes for large populations are the best available sources for wide epidemiological studies of major diseases and monitoring of specific services utilization. The main purpose of this study is to integrate existing administrative databases to create a Marche Regional dataset, that could be implemented at National levels, for neurodegenerative diseases, such as Alzheimer disease (AD), Parkinson disease (PD) and non-Alzheimer dementia (NON-AD). It will be developed a "chronicity index" to compute the aging trajectories, taking into account the different therapeutic approaches.

Background / State of Art

Despite notable advances in management, we have been largely unsuccessful at postponing, ameliorating, or preventing the chronicity of the most common age-related diseases, especially the neurodegenerative diseases. The prevalence of major neurodegenerative diseases (ND) is increasing with improvements in treating major diseases such as cancers and cardiovascular diseases, resulting in an aging population. Although the human average life expectancy in developed countries has increased dramatically, this rise has been accompanied by an increase in prevalence of chronic disorders, including neurodegenerative diseases (ND), which in turn are the major causes of disability and mortality. This phenomenon poses major economic and social challenges for nations and families, and research initiatives aimed to increase health-span and compress morbidity are of clinical and socio-economical relevance. Such complex multimorbidity is a major challenge to existing models of healthcare delivery and there is a need to ensure integrated care across disease pathways and across primary and secondary care (Tolu et al., 2014).

From a gerontology/geriatric point of view, the aging process is the result of the combined effects of selective and remodelling forces towards achieving human longevity (Spazzafumo et al., 2012; Olivieri et al., 2015; Franceschi et al., 2000). The healthy physiological processes require the complex interaction of multiple control systems operating over multiple time scales, while the ageing process itself and disease are associated with a loss of complexity in the dynamics of many physiological systems (Olivieri et al., 2016). This loss of complexity may reduce the ability to adapt to stress and lead to frailty (Franceschi et al., 2018).

In this framework, innovative computational approaches are required to analyse this overwhelming amount of complex and heterogeneous data pouring. Recently, administrative health databases are being proposed as data source for population-based estimations and are increasingly being adopted to obtain estimates of aging process, disease burden, quality of care, and resource allocation (Gavriellov-Yusim and Friger, 2014). Since administrative databases have many advantages, such as ease of access, the wide range of diseases and comorbidities and the ability to provide both cross-sectional and longitudinal data, they can be key sources for estimating the epidemiologic trends of chronic diseases. Recent studies developed population segmentation models of demand analysis applied on a data warehouse merging different healthcare administrative datasets (Madotto et al., 2013). This approach was recently applied to neurodegenerative diseases using administrative French national database (Gallini et al., 2017). ND was presumed from drug reimbursement data, hospital stays or registration of a chronic condition, and the different neurological diseases were identified through validated algorithms (Gallini et al., 2017).

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It's available a Systematic Review on this topic? Si

It's available as publication please report bibliographic data? Si

Bibliographic data (DOI): PMID: 28341166/ DOI: 10.1016/j.respe.2017.01.115

Hyphotesis and Specific AIMS

Hyphotesis and Significance:

Neurodegenerative conditions are associated with high rates of morbidity and mortality, and relevant economic burden. The management of dementia is complex and multi-faceted requiring psychological and pharmacological treatments as well as dedicated services. Patients with history of dementia are associated with an increased risk of hospitalisation, increased length of stay and poor outcome. We propose to presume ND from drug reimbursement data, hospital stays or registration of a chronic condition. AD, PD and NON-AD dementia will be identified through validated algorithms analysis of administrative healthcare databases of Marche Region. The prevalence and incidence rates of neurodegenerative diseases in Marche region will be estimated. Moreover, data on clinical outcomes (re-hospitalization, mortality, comorbidities), therapeutic approaches (drugs and medications) and nursing home placement will be integrated with state-of-the-art bioinformatics approaches to define patients into different risks clusters and to analyse the aging trend by "chronicity index" tool.

Preliminary Data:

According to the latest WHO data published in 2017, Alzheimers/Dementia deaths reached 36,003 or 6.80% of total deaths in Italy. The prevalence of dementias, considered in all its forms, is estimated at around 8% in the Italian population over 65 years and doubles every five years, up to affect about 40% of people over 80. The Marche region is one of the longest in Italy, with a prevalence of 22.9% of the population over 65 years of the total resident population. About 30 thousand over-65 years residents in Marche are affected by dementia

Picture to support preliminary data:

Preliminary data PO Spazzafumo 2018.pptx

Specific Aim 1:

It will be created a minimum dataset from administrative data of Marche residents, to estimate the prevalence and incidence of neurodegenerative diseases. The following data sources will be used:

1. drug prescription;
2. data on outpatients services;
3. accesses to the emergency department not followed by hospital admission;
4. hospital admissions for AD/PD including rehabilitation and DH, in hospital and post-discharge death, either occurring at home or in another subsequent hospitalization

Will be analysed data collected from 2012 to 2016, through validated algorithms.

Specific Aim 2:



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In this phase of the study, it will be performed a retrospective analysis on integrated minimum dataset. We will stratify the subjects into different risk groups for ND, that share common characteristics (demographic assessment, clinical status, comorbidity, drugs and therapies). An index of chronicity (CI) that provide a good discrimination between poor, medium and high risk of unsuccessful agings will be developed, using a sample of data. The CI performance will be confirmed analysing the complete dataset (confirmatory dataset).

Specific Aim 3:

Identify the trajectories of aging for patients affected by ND (AD, PD and NON-AD Dementia).

The investigated scenarios will involve mixed types of variables (categorical/continuous) at different levels of the model (outcomes and/or predictors). By regression model it will be selected a set of variable correlated with age and it will be extracted a standardized CI score. We then will be able to design the corresponding trajectories calculated from individual patients falling into groups characterized by different risk of "unsuccessful aging". The regression model will include variables or sets of variables forced into the equation at each step. For the present purposes, only the final models will be presented with all variables entered simultaneously.

Experimental Design Aim 1:

Cross-sectional retrospective study design. The source population will be permanent residents in the Marche region aged 40 years and older. Residents with hospital admissions outside the Marche region will be excluded. A minimal dataset will be build up that links data on drug prescriptions, outpatient services, access to emergency department and diagnosis for hospital admission. The prevalence will be identified by outpatient and in-hospital drug prescriptions. To exclude the patients with prior ND diagnosis a 5-years period of freedom from diseases will be considered adequate.

Experimental Design Aim 2:

The second aim of the study is to stratify patients affected by ND into different risk groups of "unsuccessful aging", applying the cluster analysis to achieve the statistical results. The data will be processed evaluating the integrated healthcare datasets on patients affected by ND, that have been collected between 2012 and 2016 in the Marche region. Selected patients will be categorized according to clinical characteristics (diagnosis and comorbidity), therapeutic approaches, clinical pathways, recurrence of events (i.e. re-hospitalization) and death, to implement the minimal dataset.

Experimental Design Aim 3:

The third aim is to identify the aging trajectories. In this phase the "chronicity index" will be created taking into account the variables that will be correlated with the different patients risk profiles. The aging trajectories will be reconstruct applying a regression model to depict the age related trends of the clustered profiles of patients. A representative random sample will be used for the discovery phase, whereas all the dataset of Marche region residents will be used for the validation phase.

Methodologies and statistical analyses:

Each subject will be identified by own unique anonymous code across all data sources.

- Patients affected by neurodegenerative diseases will be identified through the drug code for pharmaceutical prescriptions.

For

drug prescriptions, it will be the number of days of treatment covered by the prescription based on the number of boxes and

the Defined Daily Dose (DDD).



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- Data on DRG for hospital admission, the regional code for outpatients and emergency room services will also be integrated.
- The number of services will be collected to identify outpatients and emergency room services.

All measurements will be standardized using z scores for continuous variables and 0 or 1 for categorical variables. Continuous variables were log transformed to approximate a normal distribution where this will be indicated. Discriminant function analysis will be performed using both forward and backward stepwise algorithms on each cluster model to evaluate the input variables that will be significant determinants of model structure.

Performances of model approaches will be tested with simulated scenarios and real-world data using the risk stratification cohorts reported in the Aim 3 of the present study. Simulations will be generated under a number of scenarios accounting for different patterns on aging of different risk groups of neurodegenerative diseases

Expected outcomes:

Attention to local and regional needs for neurodegenerative diseases is crucial for organising services in the framework of National Laws and assuring basic levels of quality care (LEA).

The main expected outcomes are:

- Integrate existing administrative databases on ND to create a Marche Regional ND minimum dataset, that could be implemented at National level;
- Acquire information on important issues related to ND, such as early onset dementia; ethical aspects such as anticipated wills; problems of dementia in patients still in the job market, etc
- the result of this study will contribute to the successful implementation of integrated care for patients affected by ND at regional or national levels.

Risk analysis, possible problems and solutions:

Failure to obtain administrative data. Mitigating factor: data are available in administrative databases

Significance and Innovation

Dementia is one of the major health challenge for our generation, with close to 50 million people affected worldwide. The personal, social and economic consequences of dementia are enormous. Efforts are needed to monitor incidence and progression of neurodegenerative diseases in our Country. Italian administrative databases offer opportunity for innovative generation of information.

Description of the complementary and synergy research team

A multidisciplinary approach will be adopted for the realization of the project's aims. Our project is an excellent example of how clinicians, bioinformatics, statisticians and experts in health management can work efficiently in team.

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Training and tutorial activities

Efforts will be devoted by the partners of this project to communicate, valorise and transfer the knowledge generated by the project through websites, newsletters, conferences and media interactions, with a view to engaging stakeholders and policymakers. It will be used a variety of media, both online and press-based. It will be coordinated by a dedicated team involving all project partners

Bibliography

- Franceschi C, Garagnani P, Morsiani C, et al. The Continuum of Aging and Age-Related Diseases: Common Mechanisms but Different Rates. *Front Med (Lausanne)*. 2018 Mar 12;5:61. doi: 10.3389/fmed.2018.00061. eCollection 2018. Review.
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- Olivieri F, Spazzafumo L, Santini G, Lazzarini R, Albertini MC, Rippon MR, Galeazzi R, Abbatecola AM, Marcheselli F, Monti D, Ostan R, Cevenini E, Antonicelli R, Franceschi C, Procopio AD. Age-related differences in the expression of circulating microRNAs: miR-21 as a new circulating marker of inflammaging. *Mech Ageing Dev*. 2012 Nov-Dec;133(11-12):675-85. doi: 10.1016/j.mad.2012.09.004.
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- Tolu Oni, Nuala McGrath, Rhonda BeLue, et al. Chronic diseases and multi-morbidity - a conceptual modification to the WHO ICC model for countries in health transition. *BMC Public Health*. 2014; 14: 575

Timeline / Deliverables / Payable Milestones

The overall study duration is 36 months, when data analysis will be completed and final reports will be submitted to journals.

The research will begin with aim 1;



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Aim 2 will start in the first semester of the first year;.

Aim 3 will start at 18th month.

By the end of the third year all the tasks (of all aims) will be accomplished and the results will be drawn together for the drafting of the final papers.

Milestones 18 month

At the 18 month milestone, incidence and prevalence of ND in Marche Region will be estimated, and chronicity index for ND will be created.

A report showing these results will be provided.

Milestones 36 month

At the 36 month milestone, all the aims will be completed.

The trajectories of aging for ND patients will be provided.

A report showing final results will be provided.

A report of the outcome of the application of the statistical models will be provided.

Sveral manuscript drafts will be completed and submitted to peer-review international journals.

Gantt chart

GANTT SPAZZAFUMO.xlsx

Equipment and resources available

Regional Health Authorities have access to their own healthcare information systems that maintain large administrative databases and routinely monitor coding errors, assess healthcare utilization patterns, monitor healthcare outcomes, and produce reports on drug and hospital admissions for audits, surveys and researches purposes. The three Units have qualified professionals and administrative personnel, including medical doctors, pharmacists, statisticians, economists and data management experts. In addition, the three Units have adequate information technology infrastructures including computers with the most updated softwares to manage big data. The project's team has qualified professional personnel with extensive skills, experience and equipment in neurodegenerative diseases.

Translational relevance and impact for the National Health System (SSN)

The immediate implication of the project will be the availability of the real figures regarding ND in Marche region. In addition, these validated databases will be very useful to characterize ND patients by aging trajectories and to plan appropriate and effective health care services. Marche Regional minimum dataset for neurodegenerative diseases could be implemented at National levels.



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PRINCIPAL INVESTIGATOR PROFILE

Name	Institution	Marche
Spazzafumo Liana	Department/Unit	Healthcare Service Directorate, Regional Health Authority of Marche
	Position Title	Head

Personal Statement

I have an extensive experience within the INRCA Institute in providing statistical analysis, modelling and programming in different types of studies including randomized and observational studies and in different fields such as biochemistry, genetics and neurodegenerative area. Now I am appointed to manage the administrative database in the Marche Region. My responsibility will be handle the overall project, coordinating the work between the different Institutions.

Education/Training - Institution and Location	Degree	Year(s)	Field of study
BiostatEpi -Summer school on modern methods in biostatistics and epidemiology	Postgraduate course	2009	Applied Longitudinal Analysis and survival analysis
Mediterranean School of Epidemiology and Statistical Methods in Biomedical Research- CNR-Istituto di Tecnologie Biomediche	Postgraduate course	2001	Epidemiologic methods for the study of diseases of aging and Genetic association analysis
Università degli Studi di Ancona	B.S.	5	Economics

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Positions					
Institution	Division / Research group	Location	Position	From year	To year
Regional Health Officer - Marche Region	Executive for Administrative Databases and Monitoring SSR	Ancona	Head	2017	2018
Regional Health Officer - Marche Region	Epidemiologic Observatory - ARS Marche	Ancona	Head	2014	2016
INRCA - IRCCS	Laboratory of Studies and Research in Biostatistics	Ancona	Head	2010	2016
INRCA - IRCCS	Biometry and Medical Statistics Centre Ancona	Ancona	Collaborator	1992	2009
Società Italiana di Chirurgia Coloretale (SICCR) - Università Cattolica di Roma	Università Cattolica di Roma	Roma	Professor of Applied Medical Statistics	2007	2010
INRCA - IRCCS	Health Department	Ancona, Italy	Collaboration to the strategic institutional project: "Multidimensional assessment of frail elderly"	2005	2007

Official H index: 29.0 (autocertificated)

Source: Scopus

Scopus Author Id: 6701756976

ORCID ID: orcid.org/0000-0002-9718-1658

RESEARCH ID: E-5488-2015

Awards and Honors:

INRCA coordination for the European project "Genetics of Healthy Aging (GEHA)" 2006 -2009

Winner of the Italian Ministry of Health grant 2007: "Multi-disciplinary Rehabilitative Models: new drugs for elderly patients with chronic heart failure".

Winner of Young Researcher (Ministry of Health) 2009 "Psychological consequences of cancer in the elderly and in his family"

Bioethics Committee INRCA 2010-2014, as a biostatistician.

Reviewer of Techniques in Coloproctology as a biostatistician

Other CV Informations:

Teaching activity in two training projects "Epidemiology and Clinical Trials in Geriatrics" - INRCA Scientific Direction from 2010 to 2011



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Selected peer-reviewed publications of the PI

Valid for PI minimum expertise level				
Title	DOI	PMID	Cit. **	P.*
Validation of the 3-lead tele-ECG versus the 12-lead tele-ECG and the conventional 12-lead ECG method in older people	10.1258/jt.2011.1106	22267307	20	L
Outdoor mobility and social relationships of elderly people.	X	15374117	69	L
Evaluation of non-pharmacological intervention on antisocial behavior in patients suffering from Alzheimer's disease in a day care center.	X	14764305	7	L
Evaluation of non-pharmacological intervention on antisocial behavior in patients suffering from Alzheimer's disease in a day care center.	X	14764305	5	L
Validation of the Cohen-Mansfield agitation inventory (CMAI-long form) on a sample of Italian demented patients	X	14764418	5	L
Combination of biomarkers to predict mortality in elderly patients with myocardial infarction	10.1016/j.mad.2008.01.002	18299144	7	F
Remodelling of biological parameters during human ageing: evidence for complex regulation in longevity and in type 2 diabetes	10.1007/s11357-011-9348-8	22174010	20	F
Diabetes-related quality of life is enhanced by glycaemic improvement in older people.	10.1111/dme.12605	25307368	1	F
Exercise: a "new drug" for elderly patients with chronic heart failure.	10.18632/aging.100901	26953895	20	F
Age-related modulation of plasmatic beta-Galactosidase activity in healthy subjects and in patients affected by T2DM	10.18632/oncotarget.21848	29212153	0	F
Age-related differences in the expression of circulating microRNAs: miR-21 as a new circulating marker of inflammaging	10.1016/j.mad.2012.0	23041385	98	F

* Position: F=First L=Last C=Correspondent

** Autocertificated



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For evaluation CV

Title	DOI	PMID	Cit. *
The Caregiver Burden Inventory in evaluating the burden of caregivers of elderly demented patients: Results from a multicenter study	X	15847122	54
Genetics of healthy aging in Europe: The EU-integrated project GEHA (Genetics of Healthy Aging)	10.1196/annals.1395.003	17460163	66
Impact of telemonitoring at home on the management of elderly patients with congestive heart failure	10.1258/jtt.2008.0712	18776075	75
Set-up and statistical validation of a new scoring system for obstructed defaecation syndrome	10.1111/j.1463-1318.2007.01262.x	17441968	103
Predictors of high level of burden and distress in caregivers of demented patients: Results of an Italian multicenter study	10.1002/gps.1267	15660409	105
Immunoproteasome and LMP2 polymorphism in aged and Alzheimer's disease brains	10.1016/j.neurobiolaging.2004.12.004	16298241	109
Results, outcome predictors, and complications after stapled transanal rectal resection for obstructed defecation.	10.1007/s10350-007-9096-0	18157718	123
A manual of guidelines to score the modified cumulative illness rating scale and its validation in acute hospitalized elderly patients.	10.1111/j.1532-5415.2008.01935.x	18811613	167
Do men and women follow different trajectories to reach extreme longevity?	X	10902049	203
Circulating microRNAs are new and sensitive biomarkers of myocardial infarction.	10.1093/eurheartj/eh	20534597	428

* Autocertificated

Grant

Funded Institution / Country	Year	Title	Position in Projects
Ministry of Health, Italy	2009	Psychological consequences of cancer in the elderly and in his family" - Unit of Biostatistics INRCA	Collaborator
Ministry of Health, Italy	2007	Multi-disciplinary Rehabilitative Models: new drugs for elderly patients with chronic heart failure". Unit of Biostatistics INRCA - Ancona	Collaborator
EU- GHEA Project	2006	European project "Genetics of Healthy Aging (GEHA)" Project Number : LSHM-CT-2004-503270	Collaborator
Ministry of Health, Italy	2018	Enhancing the Validity of Administrative Healthcare Databases for Disease Surveillance, Comparative Effectiveness Research and Safety Evaluation	Collaborator

Employment contract extension:



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Biographical Sketch Contributors 1

Name: Recchioni Rina	Institution INRCA-IRCCS National Institute, Ancona, Italy.
	Department/Unit Center of Clinical Pathology and Innovative Therapy
	Position Title RESEARCHER

Education/Training - Institution and Location	Degree	Year(s)	Field of study
University of Urbino- Faculty of Biological Science	Biological Sciences degree (1985)	4	Cellular and molecular biology
Università Politecnica delle marche, Ancona, Italy	Specialty on Clinical Pathology (2011)	5	Clinical Pathology

Personal Statement:

I have acquired experience in the field of statistical analysis of biological data. I have collaborated in epidemiological studies and I'm currently working on biomarkers of neurological diseases. Within the project will collaborate in the identification of case definition of diseases, development of checklist and appropriate data abstract forms, data abstraction and analysis.

Institution	Division / Research group	Location	Position	From year	To year
Istituto Nazionale di Riposo e Cura per Anziani (IRCCS INRCA)	Center of Clinical Pathology and Innovative Therapy	Ancona, Italy	Senior Research Biologist	2008	2018
Istituto Nazionale di Riposo e Cura per Anziani (IRCCS INRCA)	Cytology Center	Ancona, Italy	Young Research Biologist	1992	2007

Awards and Honors

Official H index: 19.0 (autocertificated)

Source: Scopus

Scopus Author Id: : 6604083088

ORCID ID: 0000-0002-7596-3077

RESEARCH ID: X

Awards and Honors:

1988 Winner of a INRCA fellowship for biomedical research on Cellular and Molecular aging and age-related diseases
1988-1992 Fellowship holder at Research Department, Cytology Centre, INRCA, Ancona Italy.



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Biographical Sketch Contributors 2

Name: Olivieri Fabiola	Institution Università Politecnica delle Marche
	Department/Unit Clinical and Molecular Sciences
	Position Title Associate professor MED/04

Education/Training - Institution and Location	Degree	Year(s)	Field of study
University of Bologna, Italy	Degree cum laude in Biological Sciences (1992)	4	Biological sciences
University of Bologna, Italy	Ph.D degree in Experimental Pathology (1996)	4	Experimental Pathology
Università Politecnica delle Marche, Italy	Specialization in Nutrition Science, Applied Nutrition (2003)	5	Nutrition Science, Applied Nutrition
Università G. D'Annunzio, Chieti	Specialization in Clinical Pathology (2016)	5	Clinical Pathology

Personal Statement:

I heads number of research projects aimed at identifying new markers of cellular senescence and inflammation in the context of successful and unsuccessful ageing. I'm also a specialist in statistical methods including clinical trial and observational study design, statistical genetics and Structural Equation Models. In the present project I will contribute to develop computational tools and algorithms for analysis and interpretation of data. I'm also be involved in dissemination of the results and writing of reports.

**Project Title:**

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Institution	Division / Research group	Location	Position	From year	To year
INRCA-IRCCS	Center of Clinical Pathology and Innovative Therapy	Ancona, Italy	Staff biologist (Dirigente biologo di primo livello in convenzione)	2010	2018
Università Politecnica delle Marche	Department of Clinical and Molecular Sciences (DISCLIMO)	Ancona, Italy	Assistant professor, MED/04	2016	2018
Università Politecnica delle Marche	Department of Clinical and Molecular Sciences (DISCLIMO)	Ancona, Italy	Assistant professor, settore disciplinare 06/N1: SCIENZE DELLE PROFESSIONI SANITARIE E DELLE TECNOLOGIE MEDICHE APPLICATE,	2007	2016
University of Palermo	Department of Biopathology and Biomedical Methodology, Università di Palermo, Palermo, Italy	Palermo, Italy	Research Fellow	2006	2007
INRCA/IRCCS	Research Department, Center of Molecular Biology	Ancona, Italy	Contract Researcher-Research Fellow	1997	2006

Awards and Honors

Official H index: 42.0 (autocertificated)

Source: Scopus

Scopus Author Id: 7004019774

ORCID ID: 0000-0002-9606-1144

RESEARCH ID: K-6465-2016

Awards and Honors:

- Editorial Board Member of Mechanisms of Ageing and Development
- Editorial Board Member of Aging Research Reviews
- Invited speaker in a number of national and international meetings on biomarkers of aging
- Prima Fascia: Abilitata al SSD Med/46, settore concorsuale 06/N1
- Prima fascia: Abilitata al SSD Med/04, settore concorsuale 06/A2

**Project Title:**

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Biographical Sketch Contributors 3

Name: Di Furia Lucia	Institution	Marche
	Department/Unit	Healthcare Service Directorate, Regional Health Authority of Marche
	Position Title	Director

Education/Training - Institution and Location	Degree	Year(s)	Field of study
University Politecnica delle Marche, Faculty of Medicine (Ancona, Italy)	Degree in Medicine (1985)	6	Medicine and surgery
University Politecnica delle Marche, Faculty of Medicine (Ancona, Italy)	Post-graduate in Oncology (50/50 cum laude)	4	Correlation between the clinical and the anatomy-pathological picture in patients with cancer
University Politecnica delle Marche, Faculty of Medicine (Ancona, Italy)	PhD in Oncology	3	In vitro toxicity of purine nucleosides in solid tumors
University Politecnica delle Marche, Faculty of Medicine (Ancona, Italy)	Post-graduate in Psychiatry (50/50 cum laude)	5	Suicidal behavior in drug addiction. Study in a population of opiate addicts
University Politecnica delle Marche Faculty of Economics Giorgio Fuà (Ancona, Italy)	Master (II level) in the Management of the Health Sector 110/110 cum laude	2	Economics, rules and regulations of the health sector, psychology of the organisation; organisation and control, financial administration, networking

Personal Statement:

I have expertise in different fields including research based on randomized and observational studies. My recent experience was in the organization, control and evaluation in the healthcare system in the Marche region. In this project I will support the PI to analyse clinical and administrative database within the Marche region

**Project Title:**

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Institution	Division / Research group	Location	Position	From year	To year
Local Health Unit of Ancona, Italy	Radiotherapy	Ancona, Italy	Medical Doctor	1991	2004
Local Health Unit AUSL 16, Padova, Italy	Drug Addiction	Department Padova, Italy	Medical Doctor	1994	2005
Health Service - Marche Region	Drug addiction; Mental Health; Oncology	Marche Region, Ancona, Italy	Medical Manager ad interim for Public Health	2005	2009
Health Service - Marche region	Operational management of Research, Innovation, Specialised care in the community and Oncology	Marche Region, Ancona, Italy	Medical Manager ad interim for Public Health	2009	2011
Regional Health Office - Marche Region	Executive for Research, Innovation and Training	Marche Region, Ancona, Italy	Medical Manager	2011	2013
Regional Health Office - Marche Region	Executive for Hospital care, Emergency-urgency, Research and Training.	Marche Region, Ancona, Italy	Medical Manager. In charge of clinical charts, tariffs, waiting lists, specialised care in the community, out of region mobility	2013	2016
Regional Health Office - Marche Region	Director	Marche Region, Ancona, Italy	Drector	2016	2018

Awards and Honors

Official H index: 12.0 (autocertificated)

Source: Scopus

Scopus Author Id: 34167627000

ORCID ID: X

RESEARCH ID: X

Awards and Honors:

Previously member of the ECCAS (European Collaborating Centres in Addiction Studies)

Previously Member of the Research Innovation working group Servizio Salute-Regione Marche

Substitute member of LEA commission for Italian Ministry of Health

Member of National commission on Observatory in Medicine Specialization (MIUR n.195/2015);

Project Manager for the European health projects: ReDNet (Health Programm 2009); REDUCE; JADE (FP 7; AGES 2.0;



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

IRHOLA; AGL (PROGRESS 2007-2013).



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

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Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Biographical Sketch Contributors 4

Name: Fabi Katia	Institution INRCA-IRCCS National Institute, Ancona, Italy.
	Department/Unit Neurology Unit, INRCA
	Position Title MD.

Education/Training - Institution and Location	Degree	Year(s)	Field of study
Università Politecnica delle Marche	Degree cum laude in Medicine (2004)	6	Medicine, Neurology disorders
Università Politecnica delle Marche	Specialization (2009)	5	Neurology

Personal Statement:

My expertise is focused on the study and treatment of disorders of the nervous system. I will contribute to the analysis of the Marche Region administrative dataset, focusing on pharmacological treatments, diagnosis and clinical pathways.

Institution	Division / Research group	Location	Position	From year	To year
INRCA	Neurology Unit	Ancona, Italy	MD	2017	2018
ASUR Marche	Neurology	Ancona, Italy	MD, Neurologyst	2014	2015
UNIVPM	Neurology Unit	Ancona, Italy	fellowship	2011	2012
UNIVPM	Neurology Unit	Ancona, Italy	Fellowship	2012	2013
UNIVPM	Neurology Unit	Ancona, Italy	Fellowship	2010	2011

Awards and Honors

Official H index: 7.0 (autocertificated)

Source: Scopus

Scopus Author Id: 23110360200

ORCID ID: X

RESEARCH ID: X

Awards and Honors:

-Visitor research, University of Edimburg, 2007



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

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Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Expertise Research Collaborators

Selected peer-reviewed publications of the Research Group / Collaborators				
Collaborator	Title	DOI	PMID	Cit. *
Di Furia Lucia	Mephedrone (4-methylmethcathinone; 'Meow meow'): Chemical, pharmacological and clinical issues	10.1007/s00213-010-2070-x	21072502	203
Di Furia Lucia	Identifying emerging trends in recreational drug use; outcomes from the Psychonaut Web Mapping Project	10.1016/j.pnpbp.2012.07.011	22841965	88
Olivieri Fabiola	Polymorphic variants of insulin-like growth factor I (IGF-I) receptor and phosphoinositide 3-kinase genes affect IGF-I plasma levels and human longevity: Cues for an evolutionarily conserved mechanism of life span control	10.1210/jc.2002-021810	12843179	228
Recchioni Rina	MiR-146a as marker of senescence-associated pro-inflammatory status in cells involved in vascular remodelling.	10.1007/s11357-012-9440-8	22692818	80
Recchioni Rina	Diagnostic potential of circulating miR-499-5p in elderly patients with acute non ST-elevation myocardial infarction.	10.1016/j.ijcard.2012.01.075	22330002	96
Olivieri Fabiola	Evidence for sub-haplogroup h5 of mitochondrial DNA as a risk factor for late onset Alzheimer's disease.	10.1371/journal.pone.0012037.	20700462	40
Olivieri Fabiola	Do men and women follow different trajectories to reach extreme longevity?		10902049	203
Olivieri Fabiola	Inflamming and anti-inflamming: A systemic perspective on aging and longevity emerged from studies in humans	10.1016/j.mad.2006.11.016	17116321	854
Olivieri Fabiola	Bioinformatic tools for microRNA dissection.	10.1093/nar/gkv1221	26578605	50
Olivieri Fabiola	Inflamm-aging. An evolutionary perspective on immunosenescence		10911963	1498

* Autocertificated

**Project Title:**

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Grant				
Funded Institution / Country	Year	Title	Position in Projects	Collaborator
European Union	2011	Reducing hepatitis C sexual and drug taking risk behaviours among female drug users in Europe (REDUCE): translating evidence into practice.	Coordinator	Di Furia Lucia
European Union	2013	Active Ageing Going Local: a multi-stakeholder approach for three Italian Regions	Coordinator	Di Furia Lucia
European Union	2012	AGES 2.0: Activating and Guiding the Engagement of Seniors through social media	Coordinator	Di Furia Lucia
European Union	2012	Intervention Research On Health Literacy among Ageing population Acronimo: IROHLA	Coordinator	Di Furia Lucia
Ministry of Health, Italy	2013	Biostatistical methods for metaanalyzing individual participant data in diagnostic and prognostic research, with application to the role of cerebrospinal fluid biomarkers in Parkinson's disease.	Coordinator	Di Furia Lucia
Ministry of Health	2007	L'infarto miocardico nella donna: una realtà diversa. Dalla genetica alla terapia interventistica e all'impatto psicosociale della malattia prima causa di morte nel sesso femminile". Parte del Programma Strategico, Regione Lombardia, RFPS-2007-3-644382. Think pink about genes. Gender specific genetic variants associated with early-onset myocardial infarction: a genome-wide association study	Collaborator	Olivieri Fabiola
Ministry of Health	2007	Modelli riabilitativi multi-disciplinari: i nuovi farmaci per il paziente anziano con scompenso cardiaco cronico?". Parte del Programma Strategico 2007	Collaborator	Olivieri Fabiola
Italian Ministry of Research	2008	MiRNA in diagnosis and experimental therapy via nano-vectors of pleural malignant mesothelioma	Collaborator	Olivieri Fabiola



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

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Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

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Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Total proposed budget (Euro)				
Costs	TOTAL BUDGET	Co-Funding	List of costs proposed for funding to the MOH	Percentage of total proposed to the MOH
1a Staff Salary	240.000,00			0,00
1b Researchers' Contracts	196.000,00	0,00	196.000,00	49,00
2 Equipment (Leasing - Rent)	0,00	0,00	0,00	0,00
3a Supplies	5.000,00	0,00	5.000,00	1,25
3b Model Costs	0,00	0,00	0,00	0,00
3c Subcontracts	40.000,00	0,00	40.000,00	10,00
3d Patient Costs	0,00	0,00	0,00	0,00
4 IT Services and Data Bases	90.000,00	0,00	90.000,00	22,50
5 Publication Costs	8.000,00	0,00	8.000,00	2,00
6 Convegni	4.000,00	0,00	4.000,00	1,00
7 Travels	7.000,00	0,00	7.000,00	1,75
8 Overheads	40.000,00	0,00	40.000,00	10,00
9 Coordination Costs	10.000,00	0,00	10.000,00	2,50
Total	640.000,00	240.000,00	400.000,00	100,00

Report the Co-Funding Contributor:

Regione Marche,

INRCA

Università Politecnica delle Marche



Ministero della Salute
 Direzione Generale della Ricerca Sanitaria
 e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
 esercizio finanziario anni 2016-2017

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Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Budget Justification

1a Staff Salary	Salary of 2 senior researchers of Regione Marche 1 senior researcher and 1 junior researcher of INRCA 1 senior researcher of UNIVPM
1b Researchers' Contracts	4 junior researchers (FTE) for 2 years
2 Equipment (Leasing - Rent)	not foreseen
3a Supplies	specialized software
3b Model Costs	not foreseen
3c Subcontracts	Big Data analysis, machine learning and website
3d Patient Costs	not foreseen
4 IT Services and Data Bases	Implementation and maintenance of a specific database for data collection and statistical analyses
5 Publication Costs	costs relating to English language-editing and editorial submissions of preliminary and final results to international peer-review journals will be covered under this heading;"
6 Convegni	meetings for dissemination of information related to the project
7 Travels	national and international congress registration and traveling allowances
8 Overheads	costs incurred for the research in relation to general operating expenses
9 Coordination Costs	workshops meeting, report and financial statements



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

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Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

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Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Proposed total budget UO1 Institution: Marche (Euro)

Costs	TOTAL BUDGET	Co-Funding	List of costs proposed for funding to the MOH	Percentage of total proposed to the MOH
1a Staff Salary	100.000,00			0,00
1b Researchers' Contracts	95.000,00	0,00	95.000,00	39,58
2 Equipment (Leasing - Rent)	0,00	0,00	0,00	0,00
3a Supplies	0,00	0,00	0,00	0,00
3b Model Costs	0,00	0,00	0,00	0,00
3c Subcontracts	24.000,00	0,00	24.000,00	10,00
3d Patient Costs	0,00	0,00	0,00	0,00
4 IT Services and Data Bases	77.000,00	0,00	77.000,00	32,08
5 Publication Costs	4.000,00	0,00	4.000,00	1,67
6 Convegni	2.000,00	0,00	2.000,00	0,83
7 Travels	4.000,00	0,00	4.000,00	1,67
8 Overheads	24.000,00	0,00	24.000,00	10,00
9 Coordination Costs	10.000,00	0,00	10.000,00	4,17
Total	340.000,00	100.000,00	240.000,00	100,00

Report the Co-Funding Contributor:



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

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Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Budget Justification	
1a Staff Salary	Salary of 2 senior researchers of Regione Marche
1b Researchers' Contracts	2 junior researchers (FTE) for 2 years
2 Equipment (Leasing - Rent)	not foreseen
3a Supplies	not foreseen
3b Model Costs	not foreseen
3c Subcontracts	Big Data analysis, machine learning and website
3d Patient Costs	not foreseen
4 IT Services and Data Bases	Implementation and maintenance of a specific database for data collection and statistical analyses
5 Publication Costs	costs relating to English language-editing and editorial submissions of preliminary and final results to international peer-review journals will be covered under this heading;
6 Convegni	meetings for dissemination of information related to the project
7 Travels	national and international congress registration and traveling allowances
8 Overheads	costs incurred for the research in relation to general operating expenses
9 Coordination Costs	workshops meeting, report and financial statements



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

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Principal Investigator: Spazzafumo Liana

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Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Proposed total budget UO2 Institution: INRCA-IRCCS National Institute, Ancona, Italy. (Euro)

Costs	TOTAL BUDGET	Co-Funding	List of costs proposed for funding to the MOH	Percentage of total proposed to the MOH
1a Staff Salary	60.000,00			0,00
1b Researchers' Contracts	48.000,00	0,00	48.000,00	60,00
2 Equipment (Leasing - Rent)	0,00	0,00	0,00	0,00
3a Supplies	5.000,00	0,00	5.000,00	6,25
3b Model Costs	0,00	0,00	0,00	0,00
3c Subcontracts	8.000,00	0,00	8.000,00	10,00
3d Patient Costs	0,00	0,00	0,00	0,00
4 IT Services and Data Bases	10.000,00	0,00	10.000,00	12,50
5 Publication Costs	0,00	0,00	0,00	0,00
6 Convegni	0,00	0,00	0,00	0,00
7 Travels	1.000,00	0,00	1.000,00	1,25
8 Overheads	8.000,00	0,00	8.000,00	10,00
9 Coordination Costs				0,00
Total	140.000,00	60.000,00	80.000,00	100,00

Report the Co-Funding Contributor:



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Budget Justification	
1a Staff Salary	
1b Researchers' Contracts	
2 Equipment (Leasing - Rent)	
3a Supplies	
3b Model Costs	
3c Subcontracts	
3d Patient Costs	
4 IT Services and Data Bases	
5 Publication Costs	
6 Convegni	
7 Travels	
8 Overheads	
9 Coordination Costs	



Ministero della Salute
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BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Proposed total budget UO3 Institution: Università Politecnica delle Marche (Euro)

Costs	TOTAL BUDGET	Co-Funding	List of costs proposed for funding to the MOH	Percentage of total proposed to the MOH
1a Staff Salary	80.000,00			0,00
1b Researchers' Contracts	53.000,00	0,00	53.000,00	66,25
2 Equipment (Leasing - Rent)	0,00	0,00	0,00	0,00
3a Supplies	0,00	0,00	0,00	0,00
3b Model Costs	0,00	0,00	0,00	0,00
3c Subcontracts	8.000,00	0,00	8.000,00	10,00
3d Patient Costs	0,00	0,00	0,00	0,00
4 IT Services and Data Bases	3.000,00	0,00	3.000,00	3,75
5 Publication Costs	4.000,00	0,00	4.000,00	5,00
6 Convegni	2.000,00	0,00	2.000,00	2,50
7 Travels	2.000,00	0,00	2.000,00	2,50
8 Overheads	8.000,00	0,00	8.000,00	10,00
9 Coordination Costs				0,00
Total	160.000,00	80.000,00	80.000,00	100,00

Report the Co-Funding Contributor:



Ministero della Salute
Direzione Generale della Ricerca Sanitaria
e Biomedica e della Vigilanza sugli Enti

BANDO RICERCA FINALIZZATA 2018
esercizio finanziario anni 2016-2017

Project Title:

Identifying ageing TRajEctories towards chronic Neurodegenerative Diseases through Marche regional administrative databases - TREND

Project Code: RF-2018-12368164

Principal Investigator: Spazzafumo Liana

Research Type: c) Change-promoting: valutare i fattori professionali, organizzativi e di sistema che condizionano efficacia ed efficienza dei servizi sanitari e/o l'impatto sulla qualità di innovazioni cliniche, organizzative, gestionali e di finanziamento; Sviluppo...

Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Budget Justification	
1a Staff Salary	
1b Researchers' Contracts	
2 Equipment (Leasing - Rent)	
3a Supplies	
3b Model Costs	
3c Subcontracts	
3d Patient Costs	
4 IT Services and Data Bases	
5 Publication Costs	
6 Convegni	
7 Travels	
8 Overheads	
9 Coordination Costs	



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Applicant Institution: Marche

Project Type: Ordinary/Progetti ordinari di Ricerca Finalizzata

Principal Investigator Data

Cognome: Spazzafumo

Nome: Liana

Codice fiscale: SPZLNI61C57H769B

Documento: Carta d'identità, Numero: 3619605AA

Data di nascita: 17/03/1961

Luogo di nascita: San Benedetto del Tronto

Provincia di nascita: AP

Indirizzo lavorativo: Via Gentile da Fabriano,3

Città: Ancona

CAP: 60124

Provincia: AN

Email: lianaspazz@gmail.com

Altra email: liana.spazzafumo@regione.marche.it

Telefono: 0039 3393870015

Altro telefono: 0039 0718064063

Fax: 0039 07135941

Qualifica: Dirigente

Struttura: PF Flussi Informativi Sanitari e Monitoraggio SSR

Istituzione: Agenzia Regionale Sanitaria (ARS)